UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,805	12/09/2005	Christine Guillemot	017346-0188	9360

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EXAMINER
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ART UNIT	PAPER NUMBER
2439	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/532,805	GUILLEMOT ET AL.
	Examiner	Art Unit	
	JENISE E. JACKSON	2439	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>13 March 2006</u>.
2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-24</u> is/are pending in the application.
   4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) <u>1-24</u> is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on <u>4/26/05</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.
   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a)☐ All   b)☐ Some * c)☐ None of:
      1.☒ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☒ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date _____.
4)☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

1.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or
> any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and
> requirements of this title.

2.   Claims 1-24 are rejected under 101 for claiming "signals", signals are non-statutory

subject matter. The Applicant discloses a signal processing device including a signal

transformation module(see pg. 2 of specification). Signals are merely software and software is

directed to non-statutory subject matter. The Applicant is urged to amend the claims to show

how the software is executed within hardware.

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed
> in the United States before the invention by the applicant for patent or (2) a patent granted on an application for
> patent by another filed in the United States before the invention by the applicant for patent, except that an
> international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this
> subsection of an application filed in the United States only if the international application designated the United
> States and was published under Article 21(2) of such treaty in the English language.

4.   Claims 1-2, 4, 7-8, 10-19 are rejected under 35 U.S.C. 102(e) as being anticipated by

Malvar et al(2004/0240524).

5.   As per claim 1, Malvar et al. discloses a signal processing device including a signal

transformation module(220) capable of producing a transformed signal(225) from an original

signal(205) and a mixing module intended to mark the transformed signal by a marking message

(M), characterized in that the mixing module includes(see fig. 2 A sheet 2)[0038-0039]: a

formatting module capable of calculating a response of the transformed original signal to the

demodulation of a first set of carriers defined by keys protecting the message[0039, 0051], and

of calculating a marking information based on this response and code words associated with the

marking message, a modulator capable of modulating the marking data supplied by the

formatting module with a given coefficient of the carriers of the first set of carriers[0049-0052,

0054], and of modulating in amplitude the resulting coefficient by a corresponding quantity

related to the energy weighting term of the marking message and to the set of carriers, thereby

supplying a marking coefficient, an adder capable of adding the marking coefficient to the

corresponding coefficient of the transformed original signal[0050-0052, 0055].

6.   As per claim 2, Malvar discloses characterized in that the formatting module includes a

demodulator intended to perform the demodulation, said demodulator being capable of

multiplying each coefficient of the transformed original signal by the corresponding coefficient

of a given carrier in the first set of carriers, by the perceptual weight of distortion and by the

attenuation factor associated with said coefficient of the transformed signal, and to add the

coefficients thus determined, thereby supplying a component of the response of the transformed

original signal[0049-0052, 0054-0055].

7.   As per claim 4, Malvar discloses characterized in that the particular code word is

obtained by minimizing a quadratic error criterion between the code words associated with the

marking message and the normalized value of the response of the transformed signal to the

demodulation[0059-0070].

8.   As per claim 7, Malvar discloses characterized in that the mixing module includes a

carrier generating module capable of generating the first set of carriers from keys protecting the message[0033, 0049].

9.   As per claim 8, Malvar discloses characterized in that the mixer includes a scaling module capable of modulating in amplitude each signal coefficient supplied by the adder circuit by a quantity related to the energy weighting term of the marking message and the variance of the corresponding coefficient of the transformed original signal[0045, 0050].

10.   As per claim 10, Malvar discloses characterized in that it includes an inverse transformation module(240)(see fig. 2A sheet 2) at the output of the mixer(see fig. 2A sheet 2), capable of performing an inverse transformation on the marked signal(245) relative to that performed by the transformation module(220)(see fig. 2A sheet 2)[0039].

11.   As per claim 11, Malvar discloses characterized in that it includes an extraction device at the output of the inverse transformation module(240) to extract the message from the marked signal(see fig. 2A sheet 2), the extraction device including a resynchronization module capable of resynchronizing the marked signal and a signal transformation module capable of transforming the resynchronized marked signal, thereby supplying a transformed marked signal[0039-0040].

12.   As per claim 12, Malvar discloses characterized in that the transformation performed by the transformation module(240) of the extraction device is identical to that performed by the transformation module(240) to provide the coefficients of the transformed original signal[0039-0040, 0049, 0054].

13.   As per claim 13, Malvar discloses characterized in that the extraction device is capable of calculating a response of the transformed marked signal to the demodulation of a second set of

carriers defined by message protection keys, thereby providing an estimate of the marking information inserted[0050-0051, 0059].

14.   As per claim 14, Malvar discloses characterized in that the first set of carriers and the second set of carriers are identical[0033].

15.   As per claim 15, Malvar discloses characterized in that the extraction device includes a demodulator intended to perform the demodulation[0033], said demodulator being capable of multiplying each coefficient of the resynchronized marked signal by the corresponding coefficient of a given carrier of the second set of carriers and by the perceptual weight of distortion associated with said coefficient of the resynchronized marked signal, and of adding the coefficients thus determined, thereby providing a component of the estimate of the marking information[0039-0040, 0059-0064] .

16.   As per claim 16, Malvar discloses characterized in that the extraction device includes a carrier generating module capable of generating the second set of carriers from keys protecting the message[0033, 0049].

17.   As per claim 17, Malvar discloses resynchronize in that the extraction device includes a decoder capable of determining the code word closest to the estimate of the marking information by resynchronize a quadratic error criterion between a set of code words and the marking information estimate, thereby providing the marking message[0046, 0050, 0059-0064].

18.   As per claim 18, Malvar discloses resynchronize in that it includes an insertion parameters definition module at the input to the mixing module capable of determining the energy weighting term of the marking message and the attenuation factor based on the intrinsic properties of the signal, the application domain constraints, and the properties of the

transformation used[0039, 0088, 0093-0098].

19.   As per claim 19, Malvar discloses resynchronize in that the insertion parameters

definition module is capable of calculating two global insertion parameters in relation to the

insertion distortion between the original signal and the marked signal in the transform space, the

maximum allowable attack distortion between the original signal and the resynchronized marked

signal in the transform space, and the signal to noise ratio between the energy of the marking

message and the attack noise[[0040, 0050-0051, 0070].

Claim Rejections – 35 USC § 103

20.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

21.   Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Malvar et

al(2004/0240524) in view of Carey(4,972,483)

22.   As per claim 3, Malvar does not disclose characterized in that the formatting module is

capable of calculating the marking information from a predetermined parameter, a first vector

associated with a particular code word of the marking message and a second vector forming in

conjunction with said first vector a normalized orthogonal base defining a hyperplane.   Carey

discloses formatting module is capable of calculating the marking information from a

predetermined parameter, a first vector associated with a particular code word of the marking

message and a second vector forming in conjunction with said first vector a normalized

orthogonal base defining a hyperplane(see col. 4, lines 42-66). It would have been obvious to

one of ordinary skill in the art at the time of the invention to include a hyperplane, the motivation

is that using a hyperplane the set of vectors can be selected randomly (see col. 8, lines 33-35 of

Carey).

23.   Claims 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Malvar et

al(2004/0240524) in view of Delogne et al(4,894,713).

24.   As per claim 22, Malvar discloses a transformed original signal supplied by the signal

transformation module(see fig. 2A sheet 2). Delogne discloses coefficients of the signal are

those of a Fourier transformation ((see col. 1, lines 66-67, col. 2, lines 5-13). It would have

been obvious to one of ordinary skill in the art at the time of the invention to include a Fourier

transformation of Delogne with Malvar, the motivation is that a Fourier transformation is a

unitary matrix transformation that provides good decorrelation properties(see col. 2, lines 9-11 of

Delogne).

25.   As per claim 23, Malvar discloses characterized in that the transformed original signal

supplied by the signal transformation module(see fig. 2A sheet 2). Malvar does not disclose

cosine transformation. Delogne discloses cosine transformation(see col. 2, lines 8-11). It

would have been obvious to one of ordinary skill in the art at the time of the invention to include

a cosine transformation of Delogne with Malvar, the motivation is that discrete cosine transform

is a unitary transformation that conserves energy, by the sum of variances of the transformed

coefficients is equal to that of the image elements(see col. 2, lines 8-16 of Delogne).

26.   Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Malvar et

al(2004/0240524) in view of Sharma et al(2008/0292134).

27.   As per claim 24, Malvar discloses transformed original signal supplied by the signal

transformation module(see fig. 2A sheet 2).   Malvar does not disclose a wavelet transformation.

Sharma et al. discloses a wavelet transformation [0244]. It would have been obvious to one of

ordinary skill in the art at the time of the invention to include a wavelet transformation of

Sharma with Malvar, the motivation is that wavelet transformation provides spatial and

frequency localization [0244 of Sharma].

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to JENISE E. JACKSON whose telephone number is (571)272-

3791. The examiner can normally be reached on Increased Flex time, but generally in the office

M-Fri(8-4:30)..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Edan Orgad can be reached on (571) 272-7884. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christian LaForgia/
Primary Examiner, Art Unit 2439

July 16, 2009
/J. E. J./
Examiner, Art Unit 2439